

Does Juniper have too many SDNs?

Last week's product launch extends range of controllers and data center fabrics

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MAR 17, 2015 2:11 PM PDT

After last week's Innovation Day announcements, Juniper Networks has a range of SDN, data center fabric and data center switching products to choose from.

Does it have too many? The addition of the new QFX10000 spine switch and Junos Fusion fabric may mean some product rationalization is in the works.

“There is some level of complexity in product positioning,” acknowledges Juniper CEO Rami Rahim. “But if customers decide to move from one fabric or SDN to another we provide the flexibility to move with investment protection. Customers care about the attributes of the product itself. That drives their decisions more than anything else.”

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With the introduction of the Junos Fusion data center fabric – not to be confused with the Junos Fusion announced a year ago for service provider routers -- Juniper now has four or five different switching and/or data center fabrics: Virtual Chassis, Virtual Chassis Fabric, QFabric and MetaFabric -- if that can be considered one -- being the others.

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Some of these overlap to some extent, some are “open,” some proprietary. Junos Fusion, which includes some properties from QFabric Director, uses a standard tagging scheme based on IEEE 802.1BR, whereas QFabric's is proprietary.

The proprietary characteristics of QFabric helped cool the market reception for the product.

Junos Fusion will make its way onto other Juniper platforms as well, including the EX9200 programmable core switch for enterprise campuses and data centers, says Jonathan Davidson, executive vice president and general manager of Juniper Development and Innovation.



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“It’s a key component in the data center as well as in the enterprise,” Davidson says of Junos Fusion.

Analysts predict that Junos Fusion may eventually replace the three-and-a-half year old QFabric.

“Juniper initially positioned QFabric as a foundation for cloud-ready, virtualized datacenters, but it seems SDN and network virtualization, which are even better suited for cloud-ready and virtualized datacenters, have put QFabric’s future prospects in doubt,” says IDC’s Brad Casemore. “Juniper also says that Junos Fusion shares common switching building blocks with QFabric System, and that it ‘enables coherency through automation and manages the entire data center as a single network rather than individual network elements.’ Again, it makes one wonder where QFabric will be positioned going forward.”

Juniper says QFabric is still being offered for a particular customer segment and that a development roadmap remains intact for the product line.



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Virtual Chassis and Virtual Chassis Fabric are complementary in that one evolved from the other. Virtual Chassis Fabric, for leaf-and-spine designs, is a 1G/10G/40G fabric optimized to support small and medium-sized data centers that scale to 768 10G ports by combining up to 32 Juniper QFX and EX top-of-rack switches into a single-tier, single logical switch.

VCF requires a Juniper QFX5100 to serve as the spine switch.

It grew out of Virtual Chassis, which debuted in 2008. Virtual Chassis allows up to 10 member switches to be configured into and managed as a single switch, with increased fault tolerance, high-availability and a flatter Layer 2 topology designed to minimize or eliminate the need for Spanning Tree and other protocols.

Says Casemore, “Juniper positions VCF as being for small- to mid-size datacenter environments. This positioning is likely to continue, in my estimation.”

Lastly, there’s MetaFabric which was introduced in the fall of 2013. MetaFabric combines QFX and EX switches, MX routers, SRX security systems and Contrail SDN controller into an intra- and inter-data center network.

MetaFabric is intended to enable rapid application provisioning within and across multiple data centers using existing Juniper equipment already installed in customer sites and with gear from Juniper partners.

It’s also designed to allow customers to pool network resources across data centers, Juniper says, so that these resources are more readily available for applications.

On the SDN front, Juniper also has four or five different SDN controllers: Contrail, OpenContrail, QFabric Director and NorthStar, and OpenDaylight if Juniper chooses to offer a distribution of that. Contrail appears to be the strategic offering for data center switching fabrics, while OpenContrail is Juniper’s contribution of it to the open source community.

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NorthStar is a traffic optimizer for IP/MPLS WANs designed to automate the creation of traffic-engineering paths across service provider and enterprise networks. QFabric Director programs the QFabric environment, which appears to be heading for obsolescence.

Juniper may also offer a distribution of the OpenDaylight open source SDN controller. Juniper is a Platinum member of the OpenDaylight Project and contributed an OpenContrail plugin to the effort almost a year ago.

The company is not wowed by the OpenDaylight controller's progress to date and has no current plans to offer a Juniper-branded ODL product.

"There's no multivendor network management, no network virtualization," says Ankur Singla, Juniper corporate vice president and general manager for cloud software. "It's not gone where we would like it to be. You can't solve a real customer use case with it."

Singla says multivendor VLAN configuration still needs to develop in the ODL controller.

"Maybe in one year, if it solves a use case, we will offer a commercial distribution," he says. "We'd like to; it would expand our total addressable market."

Singla says Juniper has more than 100 customers for the Contrail controller, including Symantec, Bloomberg, and a Fortune 5 industrial company with three "massive" data centers running Cisco Nexus 9000 switches. Symantec also appears to be a Cisco Application Centric Infrastructure SDN customer.

Though there appears to be no functional redundancy between all of Juniper's SDN controllers – save for QFabric Director – better integration between them could be articulated.

"Juniper probably should provide further elaboration on how Contrail/OpenContrail will work with Northstar and OpenDaylight, but there's no conflict or overlap," Casemore says.

Juniper's product launch last week was also big on emphasizing speeds and feeds, with the company trumpeting the 100G density supremacy of the QFX10000. But speeds and feeds are yesterday's news with the current industry emphasis on software abstraction and programmability.

Or is it?

"The QFX10000 is a spine switch, and Juniper wanted to make the case that its ASIC technology was necessary to drive that switch's performance characteristics, which is why we heard so much about speeds and feeds," says Casemore. "If this had been a ToR announcement, you would have heard more about the software capabilities. I think Juniper does understand what's happening in cloud datacenters, and I expect them to place considerable emphasis on network abstraction, automation, programmability, orchestration, and network disaggregation as we move forward."

Another ASIC development unveiled during Innovation Day was a custom 500G chip for Juniper's PTX core router. The ExpressPlus silicon performs more than 1.5 billion filtered operations per second and can drive 5x100G interfaces, Juniper says, which readies the router for 400G Ethernet.

Juniper also unveiled new line cards for the PTX 5000 and PTX 3000 which enable the PTX 5000 to deliver 24Tbps of bandwidth in a single rack, or 30x100G per slot, the company says.

Juniper's optimistic that its Innovation Day innovations will be well received, perhaps having learned a hard lesson from the QFabric experience.

"We have a lot of confidence in these products because we pushed the limits of silicon and software, but with a true sense and understanding of the sweet spots in the market," Rahim says.

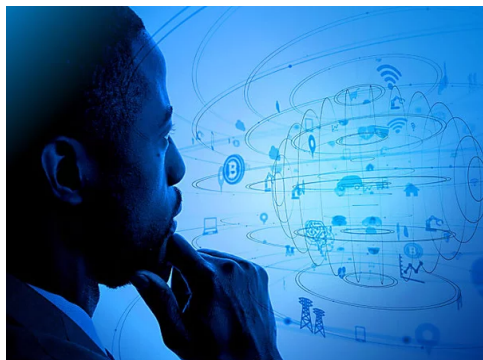
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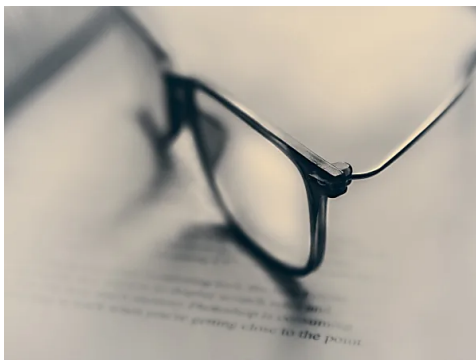
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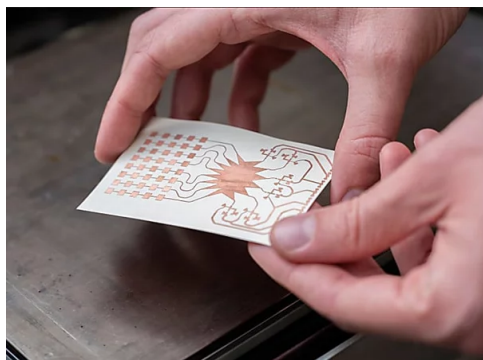
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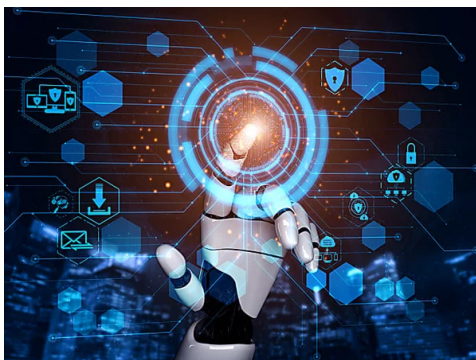
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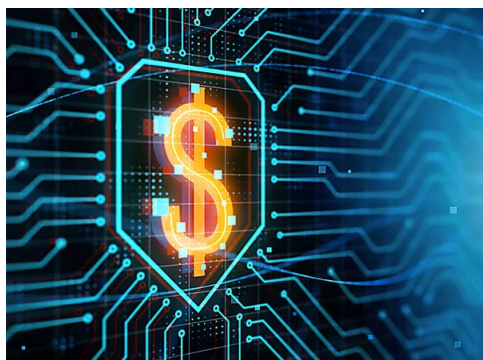
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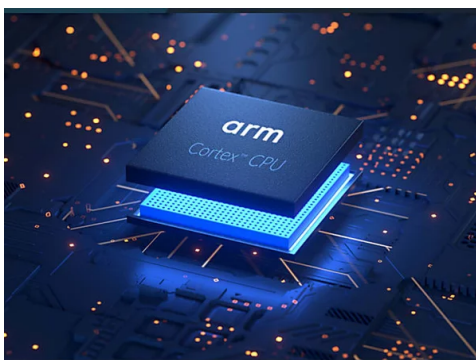
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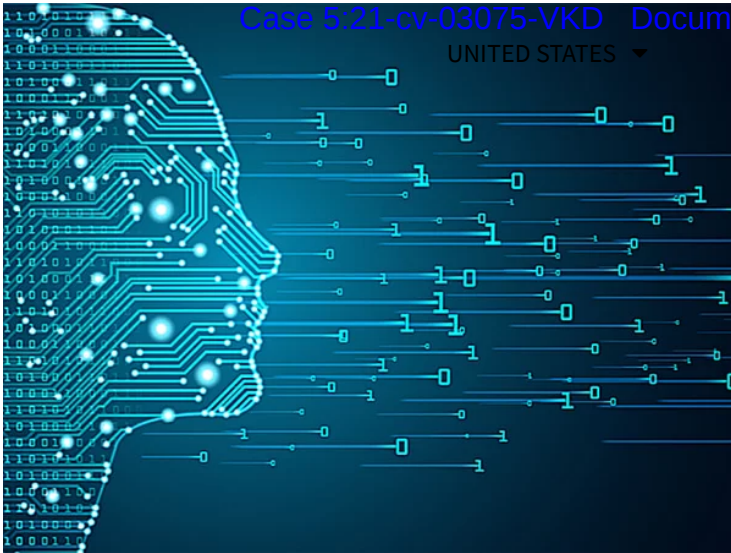


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